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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,121	12/31/2003	Jyh Chain Lin		9769
25859	7590	03/09/2005		
WEI TE CHUNG FOXCONN INTERNATIONAL, INC. 1650 MEMOREX DRIVE SANTA CLARA, CA 95050			EXAMINER NGUYEN, HAI L	
			ART UNIT 2816	PAPER NUMBER

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

**Office Action Summary**

Application No.

10/750,121

Applicant(s)

LIN ET AL.

Examiner

Hai L. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                                       |                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                           | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>31 December 2003</u> . | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because they fail to label the reference numerals according to their functions, all of the reference numerals require a corresponding textual label in addition to the numeric label. For example, reference numeral 1 in Fig. 1 should be labeled as --Sawtooth Waveforms Generator-- as described in the specification (page 4). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

2. Claims 6 and 10 are objected to because of the following informalities:

claim 6, line 2, "EFT" --FET--; and

claim 10, line 3, "EFT" --FET--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 8-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: a comparator, a wave generator, a modulation signal source, and clear necessary structural connections of these elements.

Claim 9 recites the limitation " said wave generator " in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claims 10-13 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: providing complete functional relationships of wave generator

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and a comparator with the other steps in the method of providing a light emitting diode (LED) array. In order for the driving current provided on the drain terminal for activating LED array (8 in instant Fig. 1) is changed linearly corresponding to a linear change of signals generated from the modulation signal source (6), those omitted steps need to be included in the claims.

Claim 11 is indefinite because of the recited limitation "a comparator with an associated wave generator is mechanically and electrically connected between the gate terminal and said modulation signal source" is misdescriptive. Fig. 1 clearly shows that only a comparator (2) is connected between the gate terminal (G) and the modulation signal source (6). Furthermore, the recited limitation does not provide clear necessary structural connections between a comparator and a wave generator, and other elements.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyaki et al. (US Pat. 5,604,759) in view of Boytim et al. (US Pat. 6,744,9879).

With regard to claim 1, Miyaki et al. discloses in Fig. 7 a pulse width modulation driving apparatus, comprising a sawtooth wave generator (3-1); a comparator (3-2); a field effect transistor (2); a power supply (+V); and at least one light emitting diode (1) serving as a load; wherein a modulation signal and the sawtooth wave signal are input to the comparator, an output

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of the comparator is connected to a gate terminal of the FET. Fig. 7 of Miyaki et al. meets all the claimed limitations except for a first current limiting resistor (4 in instant Fig. 4) and a second current limiting resistor (5 in instant Fig. 4). Boytim et al. discloses in Fig. 1B a circuit having a resistor (114) connected between the power supply (111) and the FET (116), and also serially connected with the load (8). Since Fig. 1B of Boytim et al. and Fig. 7 of Miyaki et al. are similar because they are pulse width modulation driving apparatuses, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention was made to implement the resistors taught by Boytim et al. in the pulse width modulation driving apparatus of Miyaki et al. as recited in the claim in order to limit current through the FET and the load.

With regard to claims 2-5, the above discussed circuit of the references meets all of the claimed limitations except that Miyaki et al. does not disclose the P-channel FET (2 in Fig. 7) whether being a P-channel enhancement-type FET or a P-channel depletion-type FET. However, it is notoriously well known in the art that the FETs can be implemented from either type since they are functionally equivalent (see column 6, lines 19-22 of Jansen US Pat. 6,469,564). Furthermore, the claimed limitations "an N-channel enhancement-type FET" and "an N-channel depletion-type FET" are also met by the references (see column 6, lines 23-25 of Jansen).

With regard to claims 6-9, these claims are similar rejected; note the above discussion with regard to claim 1. Furthermore, the claimed limitation "light emitting diode (LED) array" is considered as an intended used because it is not part of the pulse width modulation driving apparatus but rather an element that is driven by the apparatus. Since the claimed structure is met by the references, thus the apparatus of the references can drive either a single LED or a LED array as well.

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***Conclusion***

7. Regarding claims 10-13, the patentability thereof cannot be determined because of their indefiniteness.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai L. Nguyen whose telephone number is 571-272-1747 and Right Fax number is 571-273-1747. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The official fax phone number for the organization where this application or proceeding is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1562.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HLN   
February 25, 2005

  
TIMOTHY P. CALLAHAN  
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